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EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

February 21, 1995

95-RF-01893

Briand Wu
Environmental Restoration Division
DOE, RFFO

RESPONSE TO QUESTIONS FROM THE CITIZENS' ADVISORY BOARD WASTE
MANAGEMENT SUBCOMMITTEE - SRK-024-95

Ref: Briand Wu ltr (00517) to Steve Keith, Solar Ponds Questions, February 15, 1995

Action: None Required

Please find attached the response to the questions submitted by the Citizens' Advisory Board (CAB) Waste Management Subcommittee as requested in the above referenced letter. This was informally supplied to you at the CAB meeting on February 16, 1995.

If you have any further questions, please contact me at your convenience on extension 8541.

S. R. Keith
Program Manager
Solar Pond Projects

pjm

Attachment:
As Stated

Orig. and 1 cc - B. Wu

cc:
S. Howard - DOE, RFFO (SAIC)
S. Surovchak - DOE/PMD

CLASSIFICATION:

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REPLY TO RFP CC NO:

TION ITEM STATUS
 PARTIAL/OPEN
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 APPROVALS:

3 & TYPIST INITIALS

ADMIN RECORD

Responses to Department of Energy Questions

Transmitted by Memorandum [Briand Wu to Steve Keith]
February 13, 1995

Respondents: J. A. Ledford, K. L. London

Date: February 16, 1995

Q.1. *What is the percentage of money or estimated project cost being spent for dust suppression activities during cap construction?*

A.1. The unadjusted costs of materials, labor, and equipment associated with dust suppression are as follows:

\$900K Water truck and fixatives

\$200K Mixer system enhancements

\$30K Fire hydrant and piping

Total = \$1.13M

Application of site mark-ups and contingency increase that amount to \$3.5M. This is approximately 5.4% of the total construction cost of \$65M.

Q.2. *What are the concentrations for plutonium and americium in the pond sludge versus in Great Western Reservoir sediments?*

A.2. Great Western Reservoir sediments currently have an average plutonium concentration of 0.27 pCi/g (average grab sample from surface sediments), with the highest concentration measured at 4.03 pCi/g (highest value from a core sample). The average americium concentration is 0.04 pCi/g (average grab sample from surface sediments), with the highest concentration measured at 1.02 pCi/g (highest value from a core sample).

The sludge from ponds 207A, B-series, and C and the clarifier has an average plutonium concentration of 111 pCi/g and an average americium concentration of 128 pCi/g. These averages are weighted to reflect the relative amounts of sludge from each source. Additional information is provided as an attachment to this sheet.

Q.3. *What modeling or analysis has been done for the downward migration of contaminants from beneath the cap?*

A.3. Contaminant migration was evaluated through application of different models, as appropriate, to different portions of the overall proposed solution. Infiltration of precipitation through the cap was quantified using the HELP model (Hydraulic Evaluation of Landfill Performance.) The ability of this amount of infiltrated water to mobilize contaminants in the vadose zone beneath the cap was evaluated through application of the VLEACH model. (VLEACH is a one-dimensional finite difference vadose zone leaching model.) The impact of the potentially-mobilized contaminants on ground water quality at the point of compliance was determined through use of

the MYGRT model (a model for simulating migration of organic and inorganic chemicals in ground water.) Additional modeling is being performed on the soil/liner/debris/pondwaste mixture to assist development of the pond waste treatment processes, to determine acceptable ratios of the various materials in the mix, and to verify performance of the final waste form. This effort utilizes the VS2DT (Variably Saturated 2-Dimensional Transport) model which is viewed as more sensitive to the various materials proposed for disposal.